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November 1956

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INDO-PACIFIC
FISHERIES COUNCIL

FOOD AND AGRICULTURE ORGANIZATION
OF THE UNITED NATIONS

BANGKOK

THAILAND

Mr. B.R. Sen New DG of FAO

On retirement of Dr. P.V. Cardon on grounds of health, Mr. B.R. Sen of India was elected the new Director-General of FAO.

Mr. B.R. Sen was born in 1898 and educated at Calcutta and Oxford Universities. He joined the Indian Civil Service in 1922 and from 1931-43 held high posts in the Bengal Government. In 1942, as Famine Commissioner, he directed relief operations in one of India's worst famines, and from 1943-46 he was Director-General for Food in charge of collecting, storing and distributing food throughout India. In 1946 he became Secretary to the Government of India, Food Department, and from 1947-50 he was Minister in the Indian Embassy at Washington and a Member of the Indian delegation to United Nations.

In 1948 Mr. Sen was recalled to India to head the Ministry of Food and Agriculture. From 1950-51 and from 1952-54 he was Ambassador to Italy and Yugoslavia; from 1951-52 he served as Ambassador to the United States and Mexico. He was named Ambassador to Japan in 1955.

Mr. Sen represented his country at the Fourth, Fifth and Sixth Sessions of the Conference of FAO. He was Indian representative at several Council Sessions and in 1949 was Vice-Chairman of the Council.

Message To Dr. P.V. Cardon

The Food and Agriculture Organization of the United Nations at its 3rd Special Session of the Conference held in Rome between 10-20 September 1956, by a resolution, sent the following message to Dr. P.V. Cardon, the retiring Director-General of FAO.

"The Conference

Wishes to express to Dr. Cardon its deep regret that his state of health has compelled him to tender his resignation from the office of Director-General, **Conveys** to Dr. Cardon its warmest wishes, and

Places on record its high and sincere appreciation for his outstanding services to the Organization during the past ten years, first as a member of the United States delegation and then as Director-General."

General

FAO Reports World Fishery Facilities Improving

Published recently by the Food and Agriculture Organization, "The State of Food and Agriculture 1956" contains a chapter and conclusions on the World Fisheries. This chapter entitled "World Fisheries—General Trends and Outlook with Examples from Selected Countries," comprises sections on the production, consumption and utilization of fish and the trade in fishery products, technical development of fishing and government fishery policies. A number of countries are analysed in detail and the final section deals with the situation in less-developed areas as also in those where fishing activities are highly developed.

The report shows that the world production of fish, including crustaceans and molluscs, has risen from around 22 million tons in 1938 to some 28 million tons in 1952-55. In 1955 production in most countries was close to the levels of 1952-54. There were a few instances of increased output and rather more of moderate declines. These were due mainly to factors outside the control of the industry such as lesser abundance of fish on the grounds or unfavourable weather, and not to any reduction of fishery activities.

Some 50% of the world's production comes from six large producers — China, Japan, Norway, the United Kingdom, the United States and the U.S.S.R. Progress has been particularly rapid along the Atlantic seaboard of Africa and the Pacific coast of Peru and Chile. Fisheries are of the greatest relative importance to the economies of Norway and Iceland, while fish is the main source of animal protein in the diet of people in South East Asia.

A few species of fish provide the bulk of world catch. One-quarter of the total consists of herrings, sardines, anchovies, menhadens and pilchards; while the cods, hakes, haddocks, etc. account for approximately one-sixth of the aggregate.

Although they provide a rich source of animal protein, fish and fish products do not provide more than about 10% of the world's total consumption of such proteins. This level varies very considerably from area to area and is influenced by religious or social behaviour, by income groups and by the distance from the coast, since perishability has always been a predominant factor. The utilization of the catch, in the form of drying, canning, salting or processing, has been an important development to overcome storage and distribution problems, but the report notes that 40% of all fish supplies still reach the consumer in an untreated condition.

International Conference on the Law of the Sea

The International Law Commission presenting its final report on the Law of the Sea recommended that an international conference "examine the law of the sea, taking into account not only of the legal, but also of the technical, biological, economic and political aspects of the problem, and to embody the results of its work in one or more international conventions or such other instruments as it may deem appropriate."

The proposal is contained in the Commission's annual report, which this year completes the body's task of codifying the law of the high seas and of the territorial sea, a vast and complex task upon which it has been engaged since 1949. In 1954 the General Assembly asked the Commission to finish its work on the subject in time for consideration by the Assembly in 1956.

Among the topics, of particular interest to fisheries, dealt in the report are: the breadth of the territorial sea; the extent of the continental shelf, right of fishing, the conservation of the "living resources of the sea" and the right to explore and exploit its natural resources on the continental shelf.

Antibiotics in the Preservation of Fish

The possibility of using antibiotics in preservation of fish was considered at the International Meeting of Fish Processing Technologists held in Rotterdam, Netherlands from 25-29 June 1956. This meeting was organized by FAO under the

auspices of the FAO Interim Committee on Fish Handling and Processing. Some 120 fishery technologists representing about 30 countries attended.

The papers presented at the meeting showed, in general terms, that the use of antibiotics may help considerably in keeping fish in a fresh condition as much as two to three times as long as is possible with conventional ice storage methods. The problem confronting fisheries scientists was to devise methods which would ensure that any antibiotic residue left in processed fish would be so tiny as to be innocuous to human beings. Use of antibiotics would open up new fields of great potential importance to fish preservation, particularly on fishing boats engaged in long-distance fishing.

Reported also were investigations on the use of the chemical sodium nitrite, of chilled brine and ice made from sea water. Sodium nitrite is already used effectively and successfully in one country for improving the keeping quality of fresh fish. The successful application of the techniques of making and using sea water ice is of particular significance for regions where fresh water is in short supply and therefore excessively costly.

In the field of assessment of fish quality new and improved methods were also discussed. The object of research in this field is to devise objective methods of testing which can be applied under commercial conditions. There was general agreement that greater use should be made of testing panels for the evaluation of quality and freshness.

Canada Legalises Use of Aureomycin in Fish Preservation

Canada became the first country to permit use of aureomycin in fish preservation by making in September 1956 the following amendments in the Drug Regulations:

"No person shall sell fish that has in or upon it chlortetracycline if (a) the amount thereof exceeds 5 parts per million, and (b) its presence is not declared by name on the main panel of the label."

Chlortetracycline is the generic name for aureomycin which is the trade mark of the American Cyanamid Company.

Survey of Equatorial Ocean Currents

The EQUAPAC project currently in operation is a co-operative ocean-wide survey of the equatorial zonal circulation of the Pacific. Taking part are:

Japan (5 agencies) — Satuma, Kagoshima Maru, Keiten Maru, Dai Fuji Maru, Umitaka Maru, Syunkotu Maru,

France — Orsom III (Institut Francais d'Océanie, New Caledonia),

U.S.A. — Stranger, Horizon (Scripps Institution of Oceanography), Hugh M. Smith, Charles H. Gilbert (Pacific Oceanic Fishery Investigations).

An important aspect of EQUAPAC will be the measurement of the distribution of radioactivity in the waters and in organisms.

EQUAPAC carries forward from the NORPAC project, a quasi-synoptic oceanographic survey of the Pacific ocean north of 20°N latitude carried out July–September 1955, in which 20 vessels were involved, and from EASTROPIC, September–December 1955, a "multiple-ship" survey to make a detailed study of the current system in a portion of the eastern tropical Pacific.

EQUAPAC is operating between 135°W and 130°E longitudes and 15°N and 15°S latitudes.

Sonic Equipment for Tracking Individual Fish

The U.S. Fish and Wildlife Service in its Special Scientific Report—Fisheries No. 179 describes the use of special sonic devices that have been developed for obtaining detailed information on individual fish behaviour. A miniature under-water sonic tag is attached to an adult salmon and the movements of the fish are observed on calibrated sonic receiving equipment. The position of the fish can be pinpointed, and movements plotted for periods of time up to 100 hours. The equipment can be used in varied hydraulic conditions and in fresh or salt water to track the movements of adult fish and other aquatic animals.

The transducer is attached behind the dorsal fin of adult salmon by a nickel-chromium "hog-ring" clamped into the back with special pliers. It is attached underwater without handling or immobilizing the fish. Visual observations indicate that the transducer does not affect the natural movements of an adult salmon.

Paddy-cum-Fish Culture in USA

About 50,000 of the 1,000,000 acres of rice land in the State of Arkansas are being used to produce alternating crops of rice and fish. Surface water does not percolate to the substrata of the Arkansas soil making it necessary to dig reservoirs for storing water near the rice fields. Water from these reservoirs is used for flooding rice fields and stocking fish.

After plantation the rice fields are flooded and then the water is drawn off just before harvest time. After the harvest the fields are again flooded and this time planted with the desired species of fish such as carps, buffalo, and channel catfish. At the end of 2 years the fields are drained again and the fish crop harvested. Marketable fish are sold, brood stock and surplus fish returned to the reservoirs, and undesirable species destroyed.

A rice grower who produced 700 pounds of buffalo per acre over a 2-year period recently sold his marketable fish and brood stock for only slightly less than he had received for his previous rice crop. Successful raising of the buffalo and channel catfish, which are considered difficult to propagate in controlled waters adds to the return. It was reported that buffalo fingerlings, 3-6 inches in length, are sold for 50-75 U.S. dollars per thousand.

Game species produced by the rice growers are kept for sport fishing. An increasing number of reservoirs are being leased to sport fishing groups or opened to the public on a pay-to-fish basis.

American Shrimp Fishery to be Discussed

Concurrently with the 9th Annual Meeting of the Gulf and Caribbean Fisheries Institute to be held in Nassau, Bahamas from 26-30 November 1956, a meeting will also be held by the Shrimp Association of the Americas. Because of the great importance of the shrimp industry, one whole day's session will be given over to this subject, and the legal, biological and technological aspects of the shrimp industry will be covered.

Successful methods of controlling black spot in shrimp will be described by University of Miami Marine Laboratory scientists, as will mesh size experiments conducted on Tortugas grounds. A summary of progress in Fish and Wildlife Service biological shrimp studies will be given, and details of rigging vessels for deepwater red shrimp will be described by Fish and Wildlife Service scientists.

In the Economic Session a summary of economic studies on shrimp will be presented. These discussions will bring out information which will be of interest to the growing shrimp fishery in the Indo-Pacific countries.

Indo-Pacific Fish Marketing Association

Indo-Pacific Fish Marketing Association brought out its newsletter No. 5 from Hong Kong on 24 August 1956. The news items are presented in a conversational manner and personal notes are introduced

to hold interest of readers. Items included are reports on fish marketing activities and organizations in particular and fisheries development activities in general from Thailand, India, Ceylon, Hong Kong and Pakistan. The proposed study by Mr. Edward Szczepanik of Hong Kong University, under the auspices of FAO, on the "Functions of the Middleman and of Co-operatives in Fish Production and

Marketing in the Indo-Pacific Region" is reported. The questionnaire prepared by Mr. Szczepanik in this respect is also published in the newsletter. Discussions at the meeting of International Fish Processing Technologists held in Rotterdam on 25-29 June 1956 and news on the proposed "Fishing Gear Congress" due in Rome in October 1957 are also reported.

News from Member Countries

Australia

Fisheries Division of CSIRO Renamed

To broaden the scope of its fisheries activities and to lay special stress on oceanography, CSIRO has named the Fisheries Division as 'Fisheries and Oceanography Division'. This Division has now undertaken more comprehensive studies of the physical factors which affect water movements, climatic conditions, movements, behaviour as well as nutrition of fish.

Commonwealth Fisheries Office Shifted

The offices of Commonwealth Directorate of Fisheries previously at Sydney, N.S.W. were shifted to Barton, Canberra, ACT. The Commonwealth Fisheries Directorate now forms a section of the Department of Primary Industry.

Humpback whale Fishery Recovers

On the Western Australian coast, following the reduction in the quota of humpback whales for the 1955 season (due to previous evidence of a decline in this stock), the catch returns for the last season showed a remarkable recovery. The mean length of the catch increased, the length frequency distribution improved, and the percentage of immature whales decreased. It was pointed out that this was due to more stringent selection of larger whales during the 1955 season, the rate of catching showing a corresponding fall.

Deep Lining Programme

The deep lining programme of the Division of Fisheries and Oceanography of the CSIRO was concluded with the final quarterly cruise of F.R.V. "Derwent Hunter" in eastern Tasmanian waters.

During the winter cruise of 1955 the *Hyperoglyphe porosa* (deep sea trevally) were taken in greatest abundance at the upper limit (250-180 fm.) of their bathymetric range, a condition observed previously only during the summer months.

Prior to this, results from fishing tests in this area had suggested a seasonal migration of the species indicating a movement from the 350-300 fathom zone occupied in winter (June-August) to the 250-200 fathom zone in summer (December-February) at which latter season the fish spawn. These fish were taken in comparable numbers throughout the year between depths of 300-200 fathoms with the exception of the period March to May (autumn) when, for reasons unknown, their availability is considerably reduced.

Pearl Shell Production Increases

The 1955 pearling season (ended 31 January 1956) showed an appreciable increase in production and value, with a total of 1,301.22 tons of pearl shell valued at £776,894. This was 16% more in weight and 21% more in value than in the 1954 season.

For season 1956 (to end 31. 1. 57) 17 additional boats have been licensed to operate. The prospects for the 1956 pearling season are good. Results to 30 April show an increase of 82 tons of pearl shell.

Fish Imports Cut

Imports of the following fish products have been cut to 75% of

quotas established in these goods in April-June 1956:

- i. Fresh, frozen, smoked or dried,
- ii. Canned (including tuna),
- iii. Not elsewhere included (including salted).

For the following products, the import quota is 33% by value of 1954-55 imports:

- i. Fish potted and concentrated,
- ii. Oysters, fresh, in shell.

Imports of fishing gear were not reduced in order to provide for increased domestic production of fish to offset the loss of imported supplies.

Fishing gear may be imported up to 100% of quotas established for these goods in April-June 1956. The items comprise:

- i. Floats for nets,
- ii. Hooks,
- iii. Nets and netting.

Handbook of Australian Fishes

The "Fisheries Newsletter" is publishing a handbook of Australian fishes in monthly instalments. The author of this is Mr. I.S.R. Munro, taxonomic specialist at the Cronulla Headquarters of the CSIRO Division of Fisheries and Oceanography. Recently Mr. Munro wrote a similar book for Ceylon. The first instalment of the handbook appeared in the July edition of the "Fisheries Newsletter". It is expected to be completed in 5-6 years.

Burma

Burma Increases Fish Culture Efforts

The Hlawga Fisheries Research Station near Rangoon has recently completed a new series of fish culture ponds with a total pond area of approximately 24 acres.

A site of about 300 acres near Rangoon has been selected for commercial pond culture of Tilapia and indigenous fish by the Fish Marketing Co-operative Society. It is anticipated that facilities for research and practical training in fish culture will be available.

Inland Fishery Development

Mr. J. Alan Tubb (Australia), FAO/ETAP Fishery Biologist, completed a number of field trips between January and June of 1956, and has formulated a series of recommendations on various aspects of inland fisheries work which have been communicated to the Government. He also carried out a special survey of a site for a fish culture station at Thingayan. A report on Mr. Tubb's Burma mission is in preparation.

Cambodia

Production and Disposal of Fish

The Great Lake or Tonle Sap, a good breeding ground for fresh water fish, accounts for about half of Cambodia's average annual production of 130,000 tons, out of which 35,000 tons are used annually for the production of dried fish. The annual production of sea water fish is estimated at between 20,000 and 30,000 tons, mainly for export and domestic consumption as fresh; a small part is for processing into dried fish. Eighty thousand (80,000) tons of fresh, salted, dried and smoked fish are absorbed annually by the home market.

In 1954, seventeen thousand four hundred (17,400) tons of fresh and dried fish valued at Ri 100 million were exported; in the first half of 1955 the total quantity exported amounted to 6,800 tons valued at Ri 31 million. In view of the post-war fall in exports of fish to traditional markets,— Viet Nam, Singapore, Hongkong and Indonesia — efforts have lately been made to develop other markets in Laos and Viet Nam, where competition from similar products from Thailand and Japan is, however, strong.

Ceylon

Mechanisation of Craft

Mr. Einar Kvaran (Iceland), Marine Engineer, assigned to Ceylon as FAO/ETAP expert continued his special studies on the

powering of the large padavu, vallam (35' light-draft fishing craft), and the oru (outrigger canoes). In conjunction with calculations for optimum power units from

the engineering and economic points of view, consideration of winches and other aids for power operation of gear have also been taken into account. Mechanised propulsion for these fishing craft is now accepted at certain fishing ports, and present work is concentrating on the most efficient power units in respect of effective use, H.P., maintenance, capital cost, etc. Mr. Kvaran has visited stretches on the coastline hitherto scarcely visited by TA experts; a fishing craft, the first in the Trincomalee area has now been mechanised. The mechanical engineering shop at the fish terminal in Colombo will soon be ready for operation. Its equipment has been supplied by Canada under the Colombo Plan. Mr. Kvaran will help the Government and the Plan Officers to bring it into operation.

Purse Seiners from FAO

Mr. Kvaran also put into commission two purse seine boats contributed by FAO which arrived in Ceylon waters in July 1956. One of the boats is 32 feet long and the other is 37 feet. Both the boats are equipped the same way.

The boats are fitted with Freedom Type 4-cylinder Lister engines, 36 H.P. at 1800 RPM with 1:3 reduction gears and electric starting. The propellers are protected by cages to prevent nets from fouling. In the bow, stern and alongside the engine bouyancy tanks are installed to ensure complete safety. Each boat is fitted with a power winch and line hauler operated from the engine, and with a

hand winch. In addition, the boats are supplied with net rollers, wire drums, anchors, masts, spars, navigation lights, spares for the engine, paint and small tool sets. Insulated fish holds are installed fore of the engines right across the boats, and a net shoot is also fitted to facilitate shooting of purse seine, gill nets or other gear.

Nylon Gill Nets Tried

Mr. J. Saemundsson (Iceland), FAO/ETAP Fishery Engineer, worked mainly with trolling and bottom set nylon gill nets with varying success in the early part of the year. A few nylon gill nets were lent to fishermen during the summer months, and the results were encouraging. Nylon gill nets, in conjunction with mechanical hauling to enable more gear to be operated, are effective and Mr. Saemundsson is intensifying his demonstration work; a local dealer is stocking and distributing nylon nets to fishermen.

Fresh and Brackish Water Fisheries

Dr. S.W. Ling (China), FAO/ETAP Inland Fishery Biologist, has continued field surveys of the fresh and brackish water fisheries. Improvements have been made to ponds in three existing fishery stations and Giant Gouramy has been successfully stocked with increasing local popularity. Dr. Ling has been invited to collaborate with the Gal Oya Development Board in establishing a brackish water station and training officers in the management of brackish water lagoons.

FAO Fellowship for Ceylonese

Mr. H.H.A. Indrasena, Superintendent Fresh water Fisheries of the Department of Fisheries, Ceylon and one of the participants at the Third FAO/ETAP International Inland Fisheries Training Centre held in

Bogor, Indonesia during October-December 1955 is currently, touring the Indo-Pacific area on a FAO-sponsored fellowship. He is furthering his studies in fresh water fisheries and has been spending time in Singapore, the Federation of Malaya, Thailand, Hong Kong and India.

Hawaii

Grants for Radioactive Marine Research

The U.S. Atomic Energy Commission has renewed a two-year contract with the University of Hawaii increasing its grant for investigation of radioactivity in marine organisms. The new contract allows the University \$34,000 for continued radioactive marine research at Coconut Island. Instead of using one radio isotope at a time, as the Marine Laboratory has been doing previously, emphasis will now be on use of mixtures of radioactive materials as encountered in wastes from atomic power plants. Future experiments outlined will attempt to find out what happens to fish and other marine organisms that live their entire lives in surroundings slightly more radioactive than they are now.

Tuna Explorations

Completing a 51-day cruise to explore the tuna fishing potential of the waters around Marquesas Islands, some 2,000 miles south east of Hawaii, the U.S. Fish and Wildlife Service fishery research vessel *CHARLES H. GILBERT* returned to Honolulu on 26 September 1956.

Dr. Donald W. Strasburg, in charge of the scientific field party, reported spending 20 days in longline fishing, 16 days on the open sea east of the group of islands and 4 days in inshore waters. Catches were generally low, the best daily catches of each species being 20 yellowfin, 14 albacore and 7 bigeye tuna. Some of the bigeye taken were unusually large, the heaviest one weighing 370 pounds. The best albacore catches were made at the most southerly locations fished around the islands.

Few surface schools composed of small skipjack weighing about 5 pounds were unresponsive to attempts to fish them. Only one yellowfin tuna was taken at the surface on a trolling line. Four 40-60 pound dogtoothed tuna, a species not found in Hawaiian waters, were caught while trolling over banks.

Bait resources of the waters around the Islands were also surveyed and samples of sardines taken for experimental fishing in Marquesan waters and for introduction into the Hawaiian area. The *GILBERT* brought back about 2,500 sardines alive and released them in the Hanauma Bay. Success of this introduction may ease up the critical shortage of live bait in the Hawaiian skipjack fishery.

Tagging of Tuna

A joint team from Pacific Oceanic Fishery Investigations of Hawaii and the Mie Prefecture Experiment Station of Japan recently completed tagging of about 200

albacore in waters 400 miles east of Tokyo. Past records of tagged albacore recovered in Japan indicate the fish move east to west. From the present tagging, it is hoped, information will be available on any possible return migration.

Hong Kong

Unfavourable Weather Affects Fisheries

The weather during the three months of April, May and June 1956 was generally unfavourable for fishing. Large sailing trawlers fishing around the Ladrone Islands did well only during April. For the remaining two months the number of fishing days was greatly reduced due to unfavourable weather, and even when able to fish catches were poor.

Large mechanised junk trawlers, fishing about 100 miles south and south-east of Hong Kong, had unusually good catches. These fishermen claimed to have caught about 30% more fish compared to the catches during the corresponding period of 1955.

The catches of the small and medium-sized inshore sailing trawlers were fair during the first half of the quarter but poor catches were reported in the second half, due to unfavourable winds.

In addition to the normal purse seine operations carried out at night, owners of mechanised vessels worked both hand lines for white herring and long lines for golden thread during daylight hours.

As compared with corresponding quarter in 1955, market records showed a

decrease of 7.8% in fresh fish landings and a decrease of 0.9% in salt/dried fish landings during the three months under review. The overall average wholesale price of fresh fish was 11.3% higher than last year—\$ 59 per picul as compared with \$53 per picul; while that for salt/dried fish was 12.5% higher—\$45 per picul as against \$ 40 per picul.

Increased Shrimp Landings

The large increase in the number of mechanised boats engaged in shrimp trawling, as compared with last year resulted in rather high total landings but with a much reduced catch per unit effort. Prices obtained were slightly higher than last year. This was due to the newly developed export trade in quick frozen prawns.

As opposed to the rest of the fishing fleet, which is almost entirely owner-operated, many shrimp trawlers are now owned and financed by persons from outside the industry. Some 30 to 40 of this latter category of vessels were temporarily laid up during the quarter as income did not cover expenses due to poor catches.

New Gear Tested

Tests with a Japanese-type otter trawl fitted with round wooden bobbins and

circular rubber discs on the foot-rope showed that it is possible, by utilizing these fittings, to trawl over rough ground which local trawlers would not otherwise be able to fish.

A nylon shrimp otter net, based on the design of an Australian trawl, was made by the Fishing Master. This was tested with varying results.

Nylon Gill Nets Bring Good Catches

Mechanised gill net junks working out of Cheung Chau began using nets made from nylon mono-filament, instead of the usual cotton and ramie nets and had good catches of white herring and golden thread.

Mechanisation of Craft

A total of 110 vessels were mechanised during the quarter, April-June 1956. After allowing for the disappearance of nine former mechanised vessels which reverted to sail, the strength of the Colony's mechanised fishing fleet totalled 1,069 at the end of June.

Fish Marketing Bill Enacted

In May 1956 Hong Kong enacted a new Fish Marketing Bill. This Bill,

however, will be brought into force after the necessary regulations and by-laws provided for are completed and approved.

Fish Marketing Scheme in Hong Kong was originally instituted under temporary Defence Regulations. In accordance with a number of Orders made under these regulations, the movement and wholesaling of marine fish (excepting shell fish, and marine fish "alive and in water") were controlled. All marine fish landed in the Colony were, since the introduction of Fish Marketing Scheme, and are still being sold wholesale at the Organization's markets.

The new Bill, when brought into force, will establish the Fish Marketing Organization as a statutory body, exercising prescribed powers, largely through by-laws, subject to overall control of the Government of Hong Kong. The Bill initially provides for the creation of a corporation to be directed by the Director of Marketing appointed by the Government and such other officers as may be appointed from time to time by the Government, if and when such a course is desirable. The Corporation will be assisted by an Advisory Board with the Director of Marketing as Chairman and not more than six other members to be appointed by the Government.

India

Indian Fisheries Bulletin

"Indian Fisheries Bulletin" which was being published quarterly since 1954 in mimeographed form is currently being printed. This Bulletin furnishes latest

information on fisheries development and research activities in India and abroad. Copies are priced at Rs. 1 and can be had directly from the Manager of Publications, Civil Lines, New Delhi.

All India Fisheries Conference

All India Fisheries Conference was held at Madras between 19-21 September 1956. About 100 delegates, including six from FAO, attended. In addition to Mr. P.V. Acharya, FAO country representative in India, the following FAO/ETAP fisheries experts on assignment in India were at the Conference: Mr. K.F. Harding (Canada), Mr. P. Lusyne (Belgium), Mr. K.K. Rasmussen (Denmark), Mr. C.R. Bjake (Sweden), Mr. G. Illugason (Iceland).

The Conference discussed various aspects of the present status of the fishing industry in India and the programme of development of fisheries in the current year, as envisaged under India's second five-year plan.

In the course of the Conference a visit was made by delegates to the Mettur Dam to observe the development of reservoir fisheries.

Fishing Boat Designs

Mr. Paul Ziener (Norway), FAO/ETAP expert, has worked for over $2\frac{1}{2}$ years as a Fishery Naval Architect in India. He has worked in most of the maritime States of the Indian Union, latterly in the State of Madras. An interim report is in preparation embodying recommendations which have crystallized out of his field work. A number of designs have flowed from his drawing board of motorized vessels specially adapted for different fisheries in

varying conditions of work; special attention has also been given to surf passing craft.

Mr. K. Rasmussen (Denmark), another FAO/ETAP expert, has been working in recent months in Saurashtra on a fish carrier designed to meet local conditions, and on the installation of engines. Mr. Rasmussen gave training in boat design to his counterpart in Saurashtra and, after attending the All India Fisheries Conference in Madras in September started a programme of work in the State of Andhra.

Non-Indigenous Gear Tested

Mr. G. Illugason (Iceland), FAO/ETAP Fishery Engineer, has completed two years of work in India, during most of which he has worked on both coasts of the State of Madras; he also carried out a survey of the coast of Andhra. Significant results have been obtained with bottom set gill nets, which were not used to any extent in Madras State before the expert's arrival; nylon nets can be used profitably by existing local craft, and even more efficiently from mechanised boats. Trawling from small craft (especially for shrimp) on the West Coast shows excellent promise. Mr. Illugason has recently launched a two-boat purse seine programme for sardine and mackerel on the West Coast. Design recommendations are crystallizing on an optimum size and power for a small general-purpose fishing craft capable of operating from the mouths of rivers on both coasts, to fish with gill nets, longlines, trawls and purse seines.

Fishery Training Programme

Mr. F. Lusyne (Belgium), FAO/ETAP Fishery Training Specialist, conducted a national training centre at Satpati in the State of Bombay from August 1955 through March 1956. The course proved successful, since the participants can navigate their craft, operate the engines, work a variety of fishing gear and demonstrate its use; they also know how to make up and repair nets and gear. As an immediate outcome, simultaneous national training centres are being established at Cochin (State of Travancore) and Tuticorin (State of Madras) and Veraval (State of Saurashtra) which are to be conducted by trainees of the Satpati centre under the general supervision of Mr. Lusyne. Training work meanwhile is being continued at Satpati.

Harbour Improvement

The first phase of the Harbour Improvement Programme being carried out by Mr. C. Ragnar Bjuke (Sweden), FAO/ETAP Fish Harbour Specialist, is well under way. This concerns fish harbour improvement in Bombay State (3 harbours) and Saurashtra State (3 harbours). Field work for the most part is over; preliminary drawings have been prepared and reviewed by Mr. Carl G. Bjuke in Sweden. The plans will be finalized for submission to the Government during the short-term visit to India of Mr. Carl G. Bjuke. There have been requests for the services of Messrs. Bjuke from the States of Orissa, Andhra, Madras and Travancore-Cochin. A preliminary survey of the situation in Madras is being

carried out by Mr. C. Ragnar Bjuke and the programme may be extended to these new areas in 1957.

Improvement of Fish Marketing

Mr. K.F. Harding (Canada), FAO/ETAP Fish Marketing Economist, arrived in New Delhi on 5 September on a short-term assignment. He is drafting a programme of work in consultation with the Government of India which will be carried out by Mr. F.H. Barlind (Sweden), Fish Marketing Economist also of FAO/ETAP. The objective is to plan efficient distribution and marketing of fishery products, to identify factors hindering expansion of the market, and to advise on specific pilot projects. Mr. Harding will complete this initial planning phase of the work in mid-November, by which time Mr. Barlind will have arrived. Mr. Barlind will continue through 1957.

Four further fishery experts namely two Fishing Fleet Managers (respectively for Bombay and Calcutta), a Fishery Engineer for Saurashtra and a Fishery Technologist for the Central Government are being recruited by FAO under Technical Assistance programme.

Hilsa Investigations Continue

Age analysis of catch showed a predominance of $1\frac{1}{2}$ -year class in the 1952 winter catches. The same batch again appeared as a dominant $4\frac{1}{2}$ -year class in the 1955 monsoon catches. The abundance of Hilsa in Indian waters during 1955 monsoon is considered to be a result of an unusually successful spawning in 1951.

Hilsa with a significantly greater relative height of body ascended the Hooghly River during part of 1955 monsoon. Catches during the following winter did not include representatives of this stock.

Collection of Hilsa statistics in West Bengal and parts of the provinces of U.P. and Bihar are continuing.

Aid to Fishermen

Loans are being issued to a limited extent without security to Fishermen's Co-

operative Societies in Travancore-Cochin. Interest free loans are also being provided through Co-operatives to fishermen in the Punjab for the procurement of the requirements of the industry. In Travancore-Cochin salt for curing fish is being supplied to the fishermen at subsidised rates and a scheme to supply timber directly from the forests to the fishermen, instead of through middlemen, is also currently under consideration in the same State.

Indonesia

Increased Paddy-cum-Fish Culture

The acreage of rice field used for fish culture increased from 56,167 hectares in 1954 to 90,493 hectares in 1955, representing an increase of nearly 39%. The fish yield however remained the same: 9,160 metric tons in 1955 as against 9,088 metric tons in 1954.

Experiments were commenced to study effects of fish culture in paddy fields on the quality and quantity of rice produced.

Philippine Nursing Technique for Chanos Succeeds

In East and West Java the Philippine method of nursing of Chanos fry proved successful. Fry mortality was reduced to almost half of that with common Indonesian methods.

International Exchange of Fry

Punten carp fry was sent to Iraq on a request from that country. A similar request from Pakistan through the ICA of the United States for three varieties of *Cyprinus carpio* and *Osteochilus* is being attended to.

By-Product of Quinine Industry in Weed Control

Sidico, a by-product of quinine industry, is being tried in controlling *Eichhornea crassipes*, a weed in natural waters. Depending on the density of the weed, a litre of a 2.0% solution of the compound is sprayed over 3-5 m².

Water Pollution Studied

Effects of the discharge of effluents of a card-board factory at Bogor into the nearby stream were studied. Results indicated that the pollution of the stream from the fisheries point of view was negligible.

Malayan Students for Inland Fishery School

Indonesia received a request from the Malayan Government for facilities to Malayan students for attending the Inland Fishery School organized at Sukabumi under the Colombo Plan.

Indonesia reserved seats for 4 to 6 Malayan students. The college expenses were to be borne entirely by the Malayan

Government and the Indonesian Government would provide the needed text books and study facilities.

FAO Technical Assistance

A marine Biologist is being recruited by FAO to help the Government of Indonesia to undertake an investigation of the shrimp resources of the country.

Japan

Japanese Tuna Fishing in Indian Ocean

The tuna fishing in the western Indian Ocean, developed by Japanese long line fishermen, yielded catches of 12 to 14 yellowfin per 100 hooks. This was a much higher catch rate than on any other grounds fished by the long liners.

In December 1955 the *No. 2 Seiju Maru* (750 tons) returned to the port of Shimizu, Japan, with a full load of 425 tons of yellowfin and big-eyed tuna after an 80-day voyage that extended across the Indian Ocean to the vicinity of the African coast. The average day's catch was reported as about 12 tons of yellowfin. It is said that 70% of the catch passed inspection as suitable for export, that the proceeds of the voyage amounted to about US \$90,000 and that crew members received about US \$275 each for the trip.

One of the most advanced types of tuna vessels owned in Japan, according to a report from the U.S. Embassy in Tokyo, is the

"*Kuroshio Maru No. 21*" which returned in December from the new fishing grounds in the Arabian Sea region with 1,063 tons of fish, valued at over \$160,000. About 70% of this catch was slated to be canned for export. The *Kuroshio Maru* later sailed for the fishing grounds off Somaliland and Madagascar.

During January-March 1956 the Nankai Regional Fishery Research Laboratory, the Japanese Government agency most active in tuna research, jointly with the Fisheries Department of the University of Kagoshima led an expedition to investigate into oceanography and tuna ecology on the long line grounds of the Indian Ocean. University of Kagoshima training ship *Keiten Maru* (510 tons) was used in the expedition.

Salmon Fleet Ordered Home

Japan's Fishery Board ordered the salmon fleet home from the north Pacific after Russia ignored a request for an extension of the fishing season in Soviet-controlled waters.

Despite severe limitations imposed by the Soviet Union on high seas fishing off the Asian Coast, the Japanese ocean mothership expeditinos took 52,063,401 salmon during the 1956 season; 81% of 64,040,000 taken by this fleet in 1955.

Tests With Model Boats

In co-operation with the Fishing Boat Laboratory of the Government of Japan, FAO have planned 'Tests with fish boat models in waves'. A paper, outlining the problem and proposing the test procedure, was circulated to Japan for costing and to several naval architects for comments.

Detection of Potential 'Green-Fish' Before Pre-Cooking of Tuna

Japanese scientists and technologists collaborated in developing an elctro-optical device which they say is almost perfectly accurate in detecting in raw tuna those individuals which in pre-cooking will develop 'green fish' coloration that makes them unacceptable for canning and sale in the American market.

This development promises to eliminate a source of loss and irritation from the tuna industry.

Paddy-cum-Fish Culture

Experiments are in progress to determine the relationship between rice crop and fish harvest. The effects of insecticides on rice crop and fish harvest are also under study.

Soil Composition in Fish Ponds

In preliminary tests to study effects of soil composition of ponds on fish production, two cement tanks, one with a layer of soil and one without, were stocked with wild gold fish. Chemical analysis of the soil was made. Chemical fertilizers were added and growth of plankton, benthic organisms and fish were followed. This work is being continued.

Lake Hiraoka Surveyed

Lake Hiraoka (260 hectares) was surveyed to assess its fish productivity. Carp and gold fish are present in the lake in quantities to permit commercial gillnetting for them. Natural food material is abundant and growth rate of fish is normal. Oxygen content and temperature are found suitable for possible culture of trout. Limited recruitment of carp stock due presumably to unfavourable environmental conditions for successful spawning, will necessitate restocking from year to year.

Fish Culture in Impounded Waters

Fish culture was undertaken in Sakuma reservoir which is the biggest of its kind in Japan with a surface area of 7.15 km². Prior to impounding the reservoir a careful topographic survey of the valley was made and trees, bushes and all kinds of vegetation were removed from 2.00 km². surface area of likely places of fish congregation. This measure was taken to eliminate difficulties which submerged trees and bushes present in the development of fisheries in artificial reservoirs.

Water Pollution Studied

Coal mine washings were shown to adversely affect production of sea weeds, abalone, oysters and fish by depositing thick layers of coal dust in river beds and shores. During 1954-1959 the production of the Joban coal mines increased 2.5 times while that of fishery products dwindled to a quarter of the peak 1947 level.

The effluents of Yatsugatake sulphur mine discharging into the river nearby were shown to have polluted the waters up to 40 km. down-stream from the point of discharge. The pollution described in terms of i) toxicity of the polluted water to daphnia and two species of fish, ii) chemical composition of the water and iii) the density of insect fauna and algal flora in the water, was

shown to vary inversely with the distance downstream from the point of discharge.

Biological Weed Control

Chinese grass-carp was found to be an efficient weed controller in farmponds. Its introduction did not affect the total output of other major species of fish growing simultaneously in the farm-ponds.

Government Aid Natural Calamity Affected Fishermen

Japan by Cabinet Order No. 166 of 4 June 1956 has applied "Temporary Measure Law concerning a Loan of Fund" to farmers, forestry-men and fishermen who sustained damages from natural disasters of April and May 1956.

Korea

UNKRA Helps Korean Fisheries

Recent developments under the auspices of UNKRA will show a material improvement in fisheries production in Korea during this year.

At Pusan 5 new vessels fitted as two-boat "bull trawlers" were launched in January; these are in the 13 ton class and are designed for inshore fishing. They were built under the UNKRA loan system and arrangements were completed for the construction of some 20 additional fishing boats.

It is anticipated that, by the end of this year, nearly US \$ 1,000,000 worth of equipment and supplies will have been provided under the UNKRA scheme.

Confidence in the project is such that the per capita consumption target for 1958-59 has been set at 20% above the level prevailing in 1949-50. As this target is reached it is expected that Korea would have available a reasonable quantity of marine products for export.

Federation of Malaya

Fish Culture Research Station

A fish culture research and training institute will be officially opened next year at Batu Barendam, Malacca. The project

is sponsored by the Colonial Development Corporation. The institute will carry out research on the breeding, rearing and development of species of fish which can be

reared in villages as well as in towns of Malaya and other countries of South East Asia to help overcome the general food deficiency in this region.

An area of 162 acres has already been cleared and a total of 166 ponds with an area of 92 acres already constructed. The ponds range from $\frac{1}{40}$ to $4\frac{1}{2}$ acres in size. Experiments will at the beginning be made in fresh water ponds but later brackish water ponds will also be used.

Among the many experiments to be carried out at the institute will also be attempts to find out the most economical size of fish ponds, the variety of fish suited

to different areas and the conditions for the optimum growth of fish.

Currently experiments are in progress with *Tilapia mossambica*.

Catla catla fry from India

Five thousand (5,000) *Catla catla* fry from Calcutta arrived by air at Bayan Lepas airport on 31.8.56 and were immediately released into a prepared pond at the Agricultural Syndicate Farm; 1,450 of the fry were found to be dead on arrival. The live fry were fed with the yoke of boiled duck egg at the rate of one a day and fresh water weeds with epiphytes were put in to provide natural food for them.

Pakistan

Fish Harbour Makes Progress

The fish harbour projet in Karachi continued to make steady progress, and is expected to be completed by the end of 1957.

Exploratory Fishing Resumed

The exploratory fishing programme in the waters off the coast of West Pakistan was resumed on the termination of the monsoon in September. Special stress is being laid on the exploration of the shrimp grounds. In addition to otter trawls which were being used during the last few years, the use of purse seine during the current season is also planned. In previous years existence of schools of various fishes was reported by the exploratory vessels.

Fisheries Commodity through ICA Aid

For the fiscal year 1956-57 US \$ 525,000 and US \$ 315,000 respectively have been allocated for importing nylon twine for net making and 50 marine engines for mechanising indigenous fishing craft. These commodities are for distribution to the fishing community on easy instalment payments. These measures are in continuation of similar measures taken in 1955-56.

Retail Fish Marketing in Karachi Improved

Sixteen refrigerated fish stalls constructed at Karachi are catering to the demand for good quality fresh fish in the city. These stalls are fed by refrigerated vans from two central cold storages.

Interim Report on East Pakistan Marine Fisheries

East Wing of the Central Fisheries Department submitted its interim report on the economic survey of East Pakistan marine fisheries. This report presents certain important conclusions and recommends suitable measures for the development of these fisheries.

Sea Exploratory Scheme for East Pakistan

A Sea Exploratory Scheme for East Pakistan was sanctioned at a cost of Rs. 1,500,000 spread over three years. This scheme provides for one exploratory vessel suited to operate various types of mechanised fishing gear, expert services of one USA master fisherman and one USA marine engineer, and training abroad of one Pakistani as master fisherman and one as marine engineer. The detailed drawings of the vessel are being completed and suitable candidates selected for training abroad.

Carrier Vessel for East Pakistan

A carrier vessel with a hold capacity of 50 tons of fresh round fish was procured.

This vessel will be operated by a fishermen co-operative society. During the first year the co-operative society will pay a token hire charge. In the second year an agreement between the government and co-operative society will be signed for a hire purchase of the vessel by the co-operative society on terms commensurate with the demonstrated earning capacity of the vessel.

Development of Mekran Fisheries

The Mekran Fisheries Development Project is underway. This project provides for mechanisation of the fishing craft, construction of market premises with ice and cold storage plants, small fish meal plants as well as demonstration curing yards. Orders have been placed for importation of equipment and construction of curing yards is underway.

Hilsa Investigation in East Pakistan

Hilsa Investigations in East Pakistan commenced. Field staff recruited for the purpose were trained and detailed on field duty. Order for the Hilsa investigation vessel was placed; delivery is expected about middle of 1957.

Philippines

Chanos Culture Increases

Acreage devoted to Chanos culture increased from 100,097 hectares in 1954 to 104,953 in 1955 representing an increase of 4,856 hectares or 4.0% over the year. This

is in keeping with the trend during previous years. Culture techniques are being improved by the use of fertilizers, artificial feeds and adoption of fish pond management methods successfully employed in other countries.

Nutrition Experiments in Fish Culture

Artificial feeds fortified with antibiotics, vitamins, and other trace elements were given to Chanos in fish ponds. Favourable results were reported by private fish pond owners. The study is being continued.

Soil Composition in Fish Culture

Physical and chemical examination of soil in commercial fish ponds showed that for growth of Chanos clay soil rich in nutrients and organic matter was superior to other types.

Non-Indigenous Fish Established

Common carp, *Cyprinus carpio*, introduced in Philippine waters is well established and also accepted as a desirable food fish. Another successful introduction is Pla Salit, *Trichogaster spp.* Giant Gourami, Blue Gill and Black Bass introduced in the Philippines did not prove of significance. The competition that *Tilapia mossambica* offers to Chanos, a well-liked fish, has made its introduction a controversial issue.

Expanded Fisheries Statistics Activities

The Bureau of Fisheries has, in a programme submitted to the National Economic Council, asked for 60,000 Pesos for expanded activities in fisheries statistics. Under the programme the Bureau proposes to enlist the services of school teachers in about 650 municipalities where

fisheries activities are important. The teachers to be engaged on a part-time basis will gather statistics on fishery and related industries in their respective areas. Part of the funds will be used for the purchase of equipment.

Controls on Trawling

A permanent solution is being sought to solve the conflict between otter trawlers and local sustenance fishermen in the San Miguel Bay. In the past otter trawls allegedly depleting the fishery resources of the Bay were partially or completely prohibited from operating. A recent proposal to limit operation of trawls in Philippine waters to beyond the 10-fathom contour would, if accepted, take away from them more than 40.0% of the present available trawling grounds. Withdrawal of the trawlers which account for more than 40.0% of total fish landings in Philippines may result in scarcity of fish in the markets. A compromise formula is being sought to provide for varying degrees of prohibition of trawlers in different waters in inverse proportion to the intensity of employment in those waters of gear other than trawls.

Co-operative Marketing of Fish

The Agricultural Credit and Co-operative Financing Administration (ACCFA), a semi-government agency organizing rural economy in the Philippines, has launched its plans for co-operative fish marketing. Organization papers for the Fishermen's Co-operative Marketing Association (FICOMA) located at Coron, Palawan,

Balatan, Camarines Sur, and Navotas, Rizal have already been approved by proper authorities; while those for the rest of the total of ten FICOMAS are being processed.

The FICOMAS in a region form into a federation of FICOMAS. All such federations are under the direct supervision of the Central Co-operative Exchange (CCE)

The FICOMAS, the Federation of FICOMAS and the CCE are managed and supervised by their respective Board of Directors. Such directors are elected from among members during annual meetings. These different organizations are financed by ACCFA funds. The CCE is directly responsible to ACCFA, for loans granted for marketing the fishery products.

Members of the FICOMAS can avail themselves of the different loans, namely production loan, gear improvement loan, and facility loan; while the FICOMA itself can make use of the facility and merchandizing loans. The FICOMA takes care of the marketing of the fishery products of the members. Unsold commodities under the FICOMA are delivered to the Federation of FICOMAS for disposal. In turn, fishery products which can not be sold by the Federation of FICOMAS are forwarded to the CCE for final disposal. With offices in Manila, the CCE takes over the final distribution of fishery products obtained from the different FICOMAS and Federations of FICOMAS. Proceeds of the sales are given back to the fishermen, less operating expenses of the three entities but usually not more than 5% of the gross sales value.

Legislation to Improve Fish Marketing

Conscious of the difficulties in the fish marketing practices, the Third Congress of the Republic of the Philippines in its 3rd Session passed the following bills:

House Bill No. 778 -- "An Act authorizing the appropriation of 500,000 Pesos to be loaned to Co-operative Fishing Associations, and for other purposes."

House Bill No. 1620 -- "An Act providing for effectual government financial assistance to Filipino fishermen and to authorize the appropriation of funds therefor."

House Bill No. 3292 -- "An Act appropriating the sum of one million Pesos or so much more as may be necessary for the construction of a wharf to be used for fish landing in the Municipality of Navotas, Province of Rizal."

FAO Technical Assistance

Dr. K.F.W. Tiews (Germany), FAO/ETAP Marine Fishery Biologist, arrived in the Philippines in October to assist the Government in planning their programme of research in marine fishery biology; part of this programme will concern research work on the tunas.

Mr. Tatusuzo Suzuki (Japan) has gone to the Philippines on a FAO/ETAP assignment as Master Fisherman. Mr. Suzuki will assist in conducting experimental fishing for tuna etc., mainly with floating longlines on the high seas.

Taiwan

Fertilizer and Artificial Feeds in Fish Culture

Liberal use of fertilizers and artificial feeds in Chanos fish pond projects have resulted in the production of $1\frac{1}{2}$ to 3 tons of

Chanos per hectare per year. Fertilizers used include soyabean waste, peanut cake, tea seed cake, rice bran, and animal manures. Recurrent scarcity of Chanos fry is a problem which is currently receiving serious attention.

Thailand

Introduction of Non-Indigenous Gear

A study on the operations of Japanese seines was organized by the Department of Fisheries, in co-operation with USOM who supplied the seine nets. The seines were operated from two 32-ton commercial fishing vessels. Sixteen Thai fishermen were trained in the operation of the gear under the guidance and supervision of two Japanese gear specialists, Messrs. Nakagawa and Honoso.

Organization of Technological Laboratory

The technological laboratory of the Department of Fisheries, Thailand, has been organized under the supervision of Mr. G. Sand, FAO/ETAP expert on assignment in Thailand. The laboratory has been working on the composition of commercially important fish, and keeping quality of salted fish. In addition, attempts are also being made to produce special products of Hoy Krang (Ark Shell). Of late heavy landings of Hoy Krang in the Bangkok market have produced depressing effects on the price for this commodity.

Aid to Fishermen for Mechanising Fishing Craft

In order to speed up mechanisation of fishing craft, the Government are aiding fishermen in obtaining engines on a hire purchase system. Under a recently sanctioned scheme the Government are furnishing, from the Fisheries Revolving Funds, 25% of the cost of the engines direct to the suppliers on an agreement providing for the reimbursement of this amount by the suppliers to the Government within 6-9 months. Other terms of the hire purchase agreement are directly negotiated between the suppliers and the fishermen.

Quality of Salted Rastrelliger

During January-July 1956, of the total salted Rastrelliger export from Thailand 5,451.79 tons were of standard quality, 303.13 tons under-standard as against 4,096.29 tons and 321.31 tons respectively during 1955. Price of standard salted Rastrelliger during January-July 1956 was £ 65-85 a ton while that for under-standard was £ 20 a ton. It will be recalled that in 1955 Thailand introduced quality standards for exportable salted fish. For the time

being these standards apply only to salted Rastrelliger exported by sea. For this purpose five grades were specified; the permissible limit of broken fish was set at (5%), requirements of humidity and odour were defined in qualitative terms; size of packages, manner of packing and marking of packages were also specified. Exports are allowed only on issue of the necessary certificates of quality by the Fisheries Department.

Prime Minister Donates to 'Fisheries News'

'Fisheries News', the official organ of the Department of Fisheries, Thailand, received great encouragement when H. E. the Prime Minister, Field Marshal P. Phibul Songgram donated 1,000 Bahts (US \$ 50) in appreciation of the services rendered by the Fisheries News and for furtherance of its cause. The Fisheries News has been in publication since 1948 and has kept Thai people well informed on the fisheries development in the country.

Viet Nam

Japan-Viet Nam Joint Fishing Operations

According to recent reports, Japanese fishing boats operating under a new South Viet Nam-Japan agreement are increasing fish production in Viet Nam and forcing down prices.

Japan and Viet Nam recently concluded an agreement under which light Japanese fishing boats will operate off Indo-China and sell their catches to the Vietnamese market.

Two Japanese vessels, equipped with freezing unit and sonar detection equipment already have arrived and have been fishing. At present each Japanese boat is making three trips a month. The two Japanese vessels now operating have brought in between 20 to 25 metric tons of fish each voyage.

Saigon newspapers reported that local retail fish prices dropped about 20 piastres a kilogram after the first deliveries from the Japanese boats.

The Japanese fishing fleet is not believed to be competing against local fishermen since their operations are confined to canals, rivers, and the inshore waters.

The Japan-Viet Nam Agreement provides that each Japanese vessel will sail with some Vietnamese crewmen abroad to train them in open sea fishing.

UN Economic Survey

Dr. Cecil Miles, at that time FAO Regional Fisheries Officer for Asia and the Far East, joined the U.N. Economic Survey Mission (TA) to Viet Nam in January and February 1956. His findings are included in a report of the Mission now being assembled.

Far East Regional Office

New Regional Fisheries Officer

Mr. J. Alan Tubb was appointed late in August as FAO Regional Fisheries Officer for Asia and the Far East. After graduating from the University of Melbourne Mr. Tubb served as a fishery biologist for the Commonwealth Scientific and Industrial Organization.

In 1946 he was sent to Japan where he was attached to SCAP. The following year he became Director of Fisheries in North Borneo where he remained until 1953 when he was made Reader in Marine Biology at the University of Hong Kong. His most recent post was as FAO/ETAP Fisheries Officer in Burma.

Mr. Tubb has been closely connected with the FAO and its subsidiary body, the Indo-Pacific Fisheries Council, both as a U.K. delegate and later as Vice-Chairman, ever since the preliminary meeting at Baguio in the Philippines in 1948, when the Agreement for the formation of the Council was drafted.

Dr. Miles Goes to LARO

Dr. Cecil Miles was transferred in April 1956 as Regional Fisheries Officer at the Latin American Regional Office, Santiago, Chile. Dr. Miles served as Regional Fisheries Officer for Asia and the Far East, and as ex-officio Secretary of the Indo-Pacific Fisheries Council for the past four years. Over these years he toured the Indo-Pacific area extensively and has an intimate knowledge of the fisheries in the region in which he continues to maintain

an undiminishing interest. Dr. Miles is warmly remembered by fishery scientists of the area.

Interim Staff Arrangements at FERO

Mr. C. Beever of the Economics Branch of FAO Fisheries Division succeeded Dr. Miles for two months as Acting Regional Fisheries Officer and Secretary of IPFC. Mr. Beever had previously in June-July 1954 visited the Indo-Pacific area to serve as Associate Director of the First International Fish Marketing Training Center in Hong Kong.

Mr. Beever returned to Rome in July when Dr. T. J. Job, Assistant Regional Fisheries Officer at Bangkok was appointed to officiate in the vacancy until Mr. Tubb took over from him in October.

Dr. Job Goes to Headquarters

Dr. T.J. Job who had been serving for the past five years at the Far East Regional Office of FAO as Assistant Regional Fisheries Officer was transferred to the Biology Branch of FAO Fisheries Division.

During his tenure of service at the Far East Regional Office, Dr. Job contributed considerably towards the organization of the IPFC.

Dr. Job left a number of friends in the region who remember him warmly. It is hoped that although Dr. Job is not in the region he will continue to maintain an active interest in the fisheries activities of the area.

New Fisheries Officer

Dr. M.M.R. Khan of Pakistan joined the Regional Office as Assistant Regional Fisheries Officer. He replaces Dr. T.J. Job who was transferred to FAO headquarters in Rome.

Prior to his appointment with FAO, Dr. Khan headed the East Wing of Pakistan's Central Fisheries Department. He holds an M. Sc. degree in chemistry from Dacca University. In addition, he did further graduate work at the University of British

Columbia where he obtained his M.A. and Ph. D. degrees in the field of fisheries technology. Dr. Khan did his post-graduate research work at the Vancouver, B.C. Station of the Fisheries Research Board of Canada.

In 1950 Dr. Khan returned to Pakistan and served in the Zoological Survey Department, following which he assumed the post of Fisheries Technologist at the newly created Central Fisheries Department, which he held until 1955.

IPFC News

Twenty Third Meeting of Executive Committee

The 23rd Executive Committee Meeting of the IPFC was held at Penang on the invitation of the Government of the Federation of Malaya, from 22-25 September. Present were Dr. N.K. Panikkar (Chairman) Mr. D.J. Rochford (Vice-chairman), Nai Boon Indrambarya (Member). The Meeting was serviced by the outgoing Secretary of the Council, Dr. T.J. Job and the incoming Secretary, Mr. J.A. Tubb. At the invitation of the Executive Committee, Mr. D.W. Le Mare, Director of Fisheries, Federation of Malaya and Singapore, participated in the Meeting.

The Committee reviewed the progress in the implementation of the Council's resolutions of the 6th Session, especially

pertaining to the programme of work of the Technical Committees and their various Panels, Sub-Committees, and Working groups. In addition, the publication programme was discussed in detail and the arrangements for the forthcoming 7th Session of the Council at Bandung, Indonesia in the spring of 1957 were reviewed.

Rastrelliger Sub-Committee Meeting

The IPFC Rastrelliger Sub-Committee Meeting took place at Penang by kind invitation of the Government of the Federation of Malaya from 24-30 September. Dr. N.K. Panikkar (India), ad-interim Chairman, opened the Meeting and Mr. D.W. Le Mare was elected Chairman. The undermentioned Member Governments were represented by delegation shown against each:

India — Dr. N.K. Panikkar
Mr. S.K. Banerjee
Dr. S. Jones

Thailand — Mr. Sant Bandhukul
Mr. Snan Ruamragsa

Indonesia — Mr. V. Soesanto
Mr. Soemarto

Federation of Malaya — Mr. D.W. Le Mare
Dr. Tham Ah Kow
Mr. D.N.F. Hall
Dr. G.R. Fish

The IPFC Secretariat was represented by Dr. T.J. Job and Mr. J.A. Tubb.

Dr. G.L. Kesteven represented FAO while Mr. Jan Smid attended on behalf of UNESCO.

In the implementation of the Rastrelliger programme, the proceedings of this meeting will provide work plans at national and international level.

FAO Far East Regional Conference

Special attention was given to fisheries problems and particularly to the role of government in fisheries development at the 3rd FAO Far East Regional Conference, held in Bandung, Indonesia in October 1956. Three working papers relating to fisheries matters were presented and in addition, attention was drawn, during discussions on other phases of the economic life of the region, to the highly significant part played by the national fisheries industries.

FAO Fisheries Division was represented by Mr. C. Beever and the IPFC by the Secretary, Mr. J.A. Tubb.

IPFC Observer in ICES Meeting

Mr. F.E. Popper, Chief of the Economics Branch of FAO Fisheries Division sat as an observer on behalf of IPFC at the 44th Statutory Meeting of the International Council for the Exploration of the Sea (ICES) held in Copenhagen, 1-9 October 1956.

IPFC Participates in IRC Conference

IPFC was represented at the Conference of the International Rice Commission (IRC) held in Calcutta, India in November 1956, by Mr. Hasanuddin Saanin, Head of the Laboratory for Inland Fisheries, Bogor, Indonesia, who is Chairman of the Inland Fisheries Panel of the Council. Mr. Saanin presented on behalf of the Council a report on the present status of investigations on fish culture in rice fields in the Indo-Pacific region.

Mr. J.A. Tubb, Regional Fisheries Officer, FAO, Bangkok, also attended the IRC Conference as Secretary of the IPFC with a view to establishing close working relationship between the Commission and the Council on this question.

National IPFC Committee

The Indonesian National IPFC Committee has been functioning with considerable success under the Chairmanship of Mr. H. Saanin. It has been charged by the Indonesian Government with the responsibility of organizing local arrangements for the 7th IPFC Session, to be held in Bandung.

In his capacity as Chairman of the National IPFC Committee, Mr. Saanin was nominated a member of the Indonesian delegation to the International Rice Commission Conference in Calcutta in November, 1956. At the Conference Mr. Saanin

participated in discussions on paddy-cum-fish culture.

Similar national IPFC Committees in other countries could very effectively further the cause of IPFC.

FAO Activities

Survey of Fish Marketing in Indo-Pacific Region

Mr. Edward F. Szczepanik of Hong Kong University who is the author of FAO Report No. 404, Part II—"Survey of Fish Marketing in the Indo-Pacific Region" has now been engaged by FAO as a consultant for promoting a study of the "Functions of the Middlemen and of Co-operatives in Fish Production and Marketing in South-East Asia." The Universities of Hong Kong, Singapore, and Bombay will co-operate in this study and will follow a uniform plan. Mr. Szczepanik will supervise the work carried out by the Hong Kong University and also keep in touch with the other universities for co-ordination. The necessary questionnaire for the field study has already been completed and distributed.

GFCM Fourth Meeting

More than 80 delegates from 15 countries attended the 4th Meeting of the General Fisheries Council for the Mediterranean (GFCM) which was held

in Istanbul, Turkey between 17-22 September 1956.

The delegates heard the reports of the Council's five technical committees dealing with exploration, production, utilization, inland waters, and economics and statistics of the Fisheries of the area, and approved programmes of work for these committees for the ensuing year. In the course of meetings of the committees delegates heard some 50 technical papers presented by experts from various countries, including a paper on resources, presented by Mr. Sidney J. Holt of FAO and a paper proposing rational study of Mediterranean trawling, prepared by Mr. Hilmar Kristjonsson also of FAO.

In addition to Mr. Girard, Regional Fisheries Officer for Europe and Middle East and the Secretary of the GFCM, Mr. S.J. Holt and Dr. Ernest Hess of the Fisheries Division of FAO attended the Meeting and took part in the discussions of the committees on production and utilization. Mr. Colin Beever of the same Division also attended to participate in

committee discussions, especially the committee on economics and statistics.

During the meeting, Morocco was admitted to membership, which brought the total membership of GFCM to 12.

FAO Fishery Programme - 1957

A review of the 1957 Category I country submissions to FAO and the Technical Assistance Board indicates that the number of experts expected to be employed next year on the FAO fishery technical assistance programme will be somewhat less than in 1956. During 1957 FAO-TA fishery programme provides for 67 fishery experts, compared with 76 experts in 1956. Three fishery training centres, to accommodate about 75 students, are proposed for 1957, for which FAO will provide about nine lectures, against one training center in 1956 for 25 students with three FAO lectures. In addition, 16 fishery fellowships are to be awarded against 14 in 1956. Some 32 countries as well as numerous overseas territories will benefit from the above programme.

Funds permitting, an additional 43 fishery experts and 16 fishery fellowships may be provided by FAO during 1957.

Noumea Training Centre

At Noumea, New Caledonia, a training centre jointly sponsored and organized by FAO and the South Pacific Commission opened on 19 November 1956, and will continue until 23 February 1957. The 14-week course is being attended by fishery officers from countries in the areas of the South Pacific Commission and the Indo-

Pacific Fisheries Council. The curricula include lectures and seminars covering fisheries technology, biology and economics. Participants will study a wide variety of fishery problems, such as life and habits of commercial species of fish in the Pacific waters, methods and gear used in catching fish, boats and equipment, the principles of fish processing—smoking, marinating, salting, sun-drying, etc.—management practices, fishermen's co-operatives, distribution, and marketing of fresh and processed fish and fish products.

Mr. H. van Pel, Fishery Adviser to the Commission, will serve as Director of the course and as a lecturer. FAO is providing the services of Mr. H. Kristjonsson, Gear Technologist at Headquarters and Mr. P. Lusyne, Fishery Training Specialist now on a TA assignment in India, to act in succession as co-Directors and to give courses and demonstrations on fishing methods. Mr. A.N. Swinfield (Australia) will be engaged by FAO to give courses on boat design and motor installation, operation and maintenance.

World Fishing Gear Congress

An International Fishing Gear Congress is being planned by Food and Agriculture Organization to take place during October 1957 in Hamburg, Germany. The Congress, which will last a week, will bring together specialists from many parts of the world. It will cover recent developments in fishing gear design, materials and construction, including such matters as measurement of performance of gear, detection of fish, behaviour of gear under water and reaction of fish to it.

Personalia

Australia

Dr. Blackburn now Professor of Zoology in Hawaii

Dr. Maurice Blackburn, until recently Acting Chief of CSIRO Division of Fisheries and Oceanography, Cronulla, N.S.W., Australia, has accepted an appointment as Professor of Zoology at the University of Hawaii.

Actively engaged in marine fisheries research in Australian waters for nearly 20 years, Dr. Blackburn has published 25 papers dealing, in the main, with the biology of pilchards, anchovy, whitebait and barracouta.

His new duties will include teaching and research in fishery biology.

Dr. Humphrey appointed Chief of Fisheries

After the retirement of Dr. H. Thomp-

son for reason of health, Dr. G.F. Humphrey of Sydney University accepted appointment as Chief of the Division of Fisheries and Oceanography of CSIRO. Prior to his taking up the new position Dr. Humphrey was senior lecturer in the Department of Biochemistry at the Sydney University and had been a member of the staff in the University since 1941. Dr. Humphrey has also undertaken research at Molteno Institute of Cambridge University, the Marine Laboratories at Plymouth (England) and Roscoe (France), and the Universities of Glasgow and London. He recently returned from a Nuffield Travelling Fellowship. Dr. Humphrey has published important papers on marine biochemistry, a field in which he collaborated with the Division of Fisheries and Oceanography.

Pakistan

New Appointment

On release of Dr. M.R. Khan to take up a position with FAO, Mr. A.G. Husain, formerly Senior Research Officer at the Central Fisheries Department, Karachi was appointed Deputy Director of the East Wing of Central Fisheries Department, Chittagong.

Officer's Movement

Dr. N. Ahmad, Director of Fisheries, East Pakistan, went abroad on Leader delegation programme sponsored by the ICA of the United States of America. During the 6 months of his tour, Dr. Ahmad will be familiarising himself with the fisheries of the countries in the Far East.

Philippines

New Appointment for Dr. Villadolid

The appointment of Dr. Deogracias V. Villadolid as Head of the Department of Liberal Arts in the Araneta Institute of Agriculture was announced recently.

Dr. Villadolid assumes his post as the first Head of the newly created Department. The Araneta Institute was authorized to offer liberal arts courses as of this year.

As Liberal Arts Head he will co-ordinate and supervise all activities in connection with the bachelor of arts and bachelor of science courses now offered at the Araneta Institute.

Dr. Villadolid was a "founder member" of the IPFC and in his capacity as Director of the Bureau of Fisheries, Republic of the Philippines, made very important contributions to the early growth and development of the Council.

Mr. Montalban Now Director of Fisheries

Mr. H.R. Montalban's appointment as Director of the Bureau of Fisheries was announced in September 1956. Since September 1955 Mr. Montalban had been Acting Director of the Bureau.

Previously Mr. Montalban had been serving as Chief, Division of Fish Culture and Fisheries Biology, Philippine Bureau of Fisheries since July 1947. In this capacity Mr. Montalban directed and supervised research studies on fish culture and fisheries

biology in Dagatdagatan Salt-water Fishery Experimental Station, Binakayan Oyster and Window Pane Shell Farms, Tanay Limnological Station and Naunjan Fish Hatchery.

Officers' Movement

Mr. Andres M. Wane, Superintendent of the Philippine Institute of Fisheries Technology, has been transferred to the Philippine National Economic Council. Mr. Nazario A. Pidlaoan is now the Acting Superintendent.

The following have been transferred to the Agricultural Credit and Co-operative Financing Administration: Porfirio R. Manacop, Fishery Biologist, Bayani Ongchangco, Chief of Section, Galicano Briones, Junior Fishery Biologist, Crescencio Dimen, Statistician, Fausto Mateo, Assistant Fishery Technologist, Virgilio Uyenco, Acting Chief of Section (Fishery Technologist), and Jose R. Miranda, Assistant Fishery Technologist. Mr. Manacop has taken charge of the Fisheries Co-operative Financing and Marketing Projects while the others, except Mr. Dimen who was taken in the Statistical Section, are serving in the capacity as Field Assistants.

Messrs. Ricardo Esguerra, Fish Culturist, Ricardo Lao, Assistant Geodetic Engineer, Cipriano Menguito, Fishery Technologist and Pacifico Panganiban, Assistant Fishery Technologist, have recently been transferred to the Fishpond Financing Section, Agricultural Division, Rehabilitation Finance Corporation.

Netherlands New Guinea

New Appointment for Mr. Zwollo

Mr. Zwollo has accepted an appointment with the Apeldoornsche Nettenfabriek von Zeppelin and Co., Apeldoorn, Netherlands, and will be associated henceforth with Equatorial Africa.

Mr. W.A. Mackenzie, formerly of Tonga, has replaced Mr. D.C. Zwollo as IPFC Administrative and Bibliographic Correspondent. Mr. Mackenzie is currently holding the post of Inspector of Sea Fisheries, Department of Agriculture and Fisheries, Hollandia.

Calendar of Meetings 1957

January	FAO Regional Conference in the Near East	—
„	Central American Integration Scheme Committee	Calcutta
„	14 Indian Science Congress—44th Session	—
May	Symposium on Techniques of Measuring Basic Marine Production	U.K.
„	Indo-Pacific Fisheries Council—7th Session	Bandung
„	7 International Hydrographic Bureau—7th Congress	Monte Carlo
„	14 International Fisheries Convention (1946)	—
„	20 International Commission for Northwest Atlantic Fisheries	Lisbon
	Caribbean Commission—7th Session of West Indian Conference	—
June	1 Congress of International Committee on Photobiology	Turin
„	24 International Whaling Commission	London
July	International Harbour Congress	London
„	International Congress on Ship Hydrodynamics	Madrid
August	International Statistical Institute	Stockholm
„	28 International Congress on Cell Biology—9th Meeting	St. Andrew's
„	British Association for the Advancement of Science	Dublin
September	3 International Union of Geodesy and Geophysics—11th General Assembly	Toronto
„	International Conference of International Association of Gerontology	—
„	American Society of Limnology and Oceanography—Special Meeting	Merano, Italy Woods Hole
October	International Commission for the Exploration of the Sea—45th Statutory Meeting	Bergen
	International Fishing Gear Congress 1957 (FAO)	Hamburg
November	International Advisory Committee on Marine Sciences—2nd Meeting	Bangkok
„	18 Pacific Science Congress—9th Session	Bangkok

November	FAO Conference—9th Session	—
„	Caribbean Fisheries Seminar—3rd Session	—
„	Regional Conference on Sea Fisheries (Commission for Technical Co-operation South of the Sahara)	W. Africa
„	Inter-African Statistics Conference (Commission for Technical Co-operation South of the Sahara)	Lourenco Marques
„ 26	Gulf and Caribbean Fisheries Institute—9th Meeting	Nassau
	International Internal Combustion Engine Congress	Zurich

FAO Training Centres 1957

May/June	Workshop on Population Dynamics and the Selectivity of Fishing Gear (joint ICNAF/ICES/FAO)	Lisbon
	FAO/ETAP Training Centre in Fisheries Co-operatives and Administration	Australia